MARYLAND HISTORICAL TRUST

Mitigation & Adaptation

Weather it Together:

Protecting Maryland's Historic Buildings From Flood

Maryland Historical Trust

25 May 2017

PDP

About PDP – Historic Preservation Planning

- Documentation
- Preservation Planning
- Administration of Historic Regulatory Process
- Design Guidelines
- Historic Master Planning

Water, Water Everywhere….

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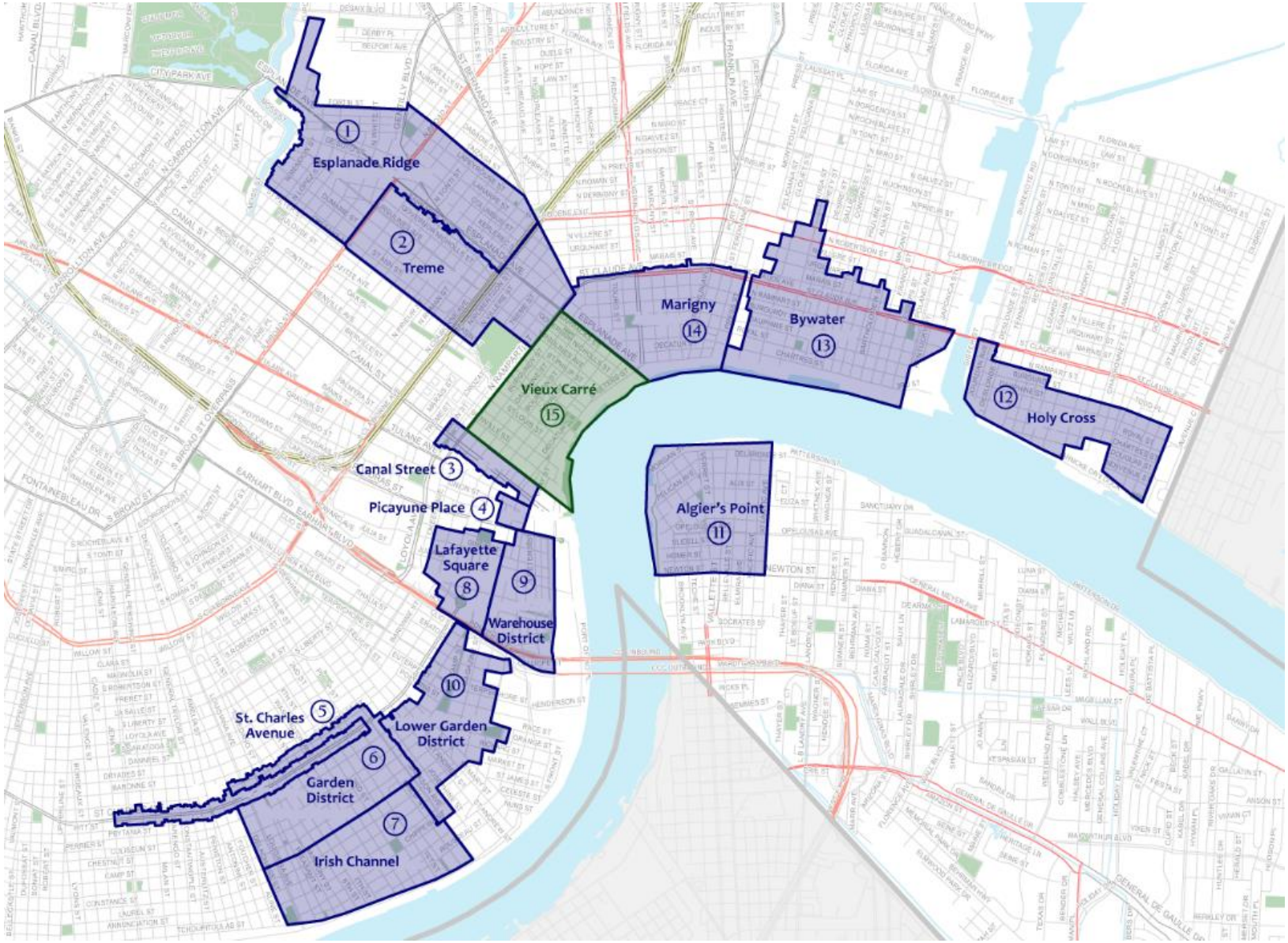

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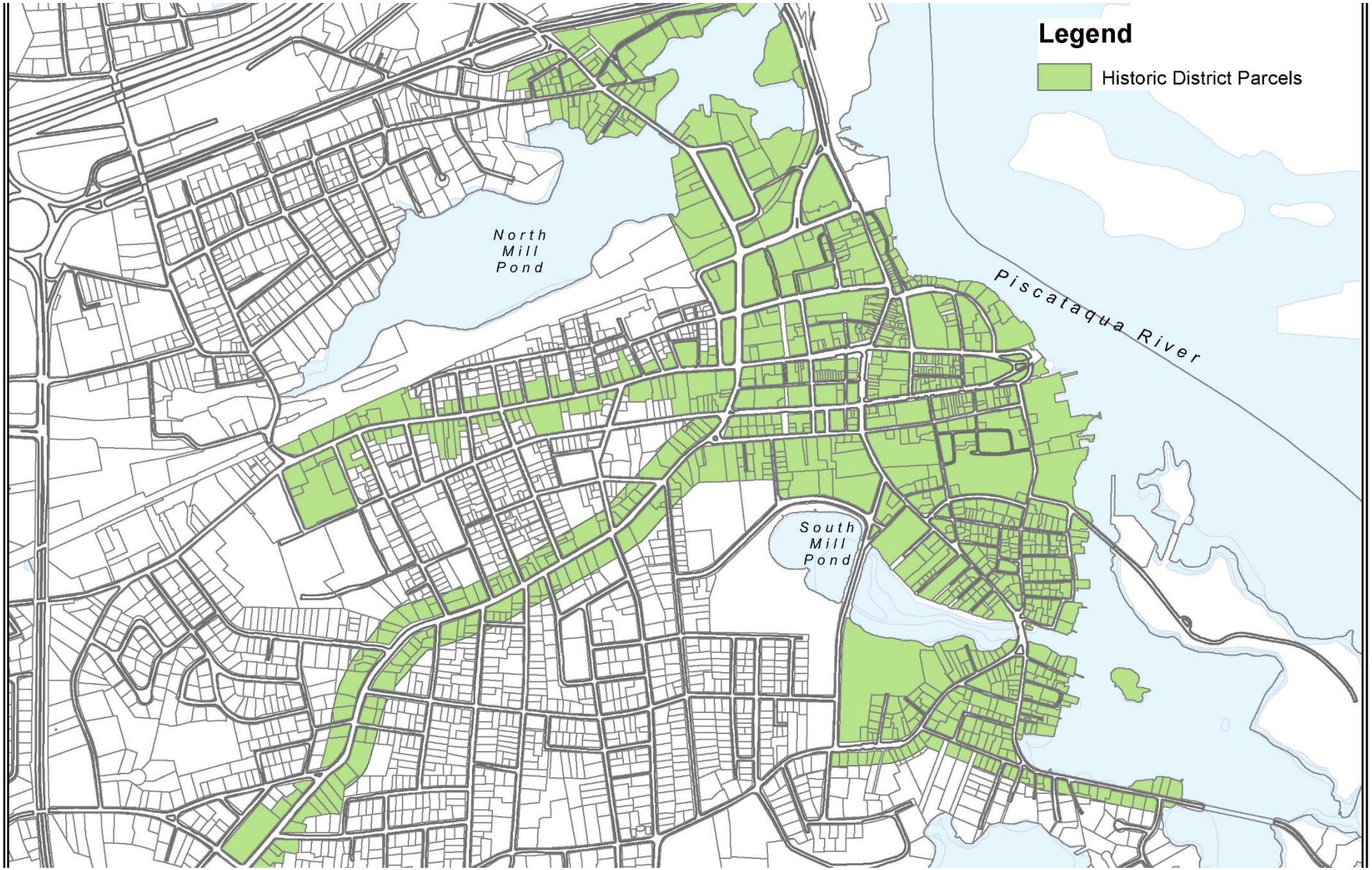
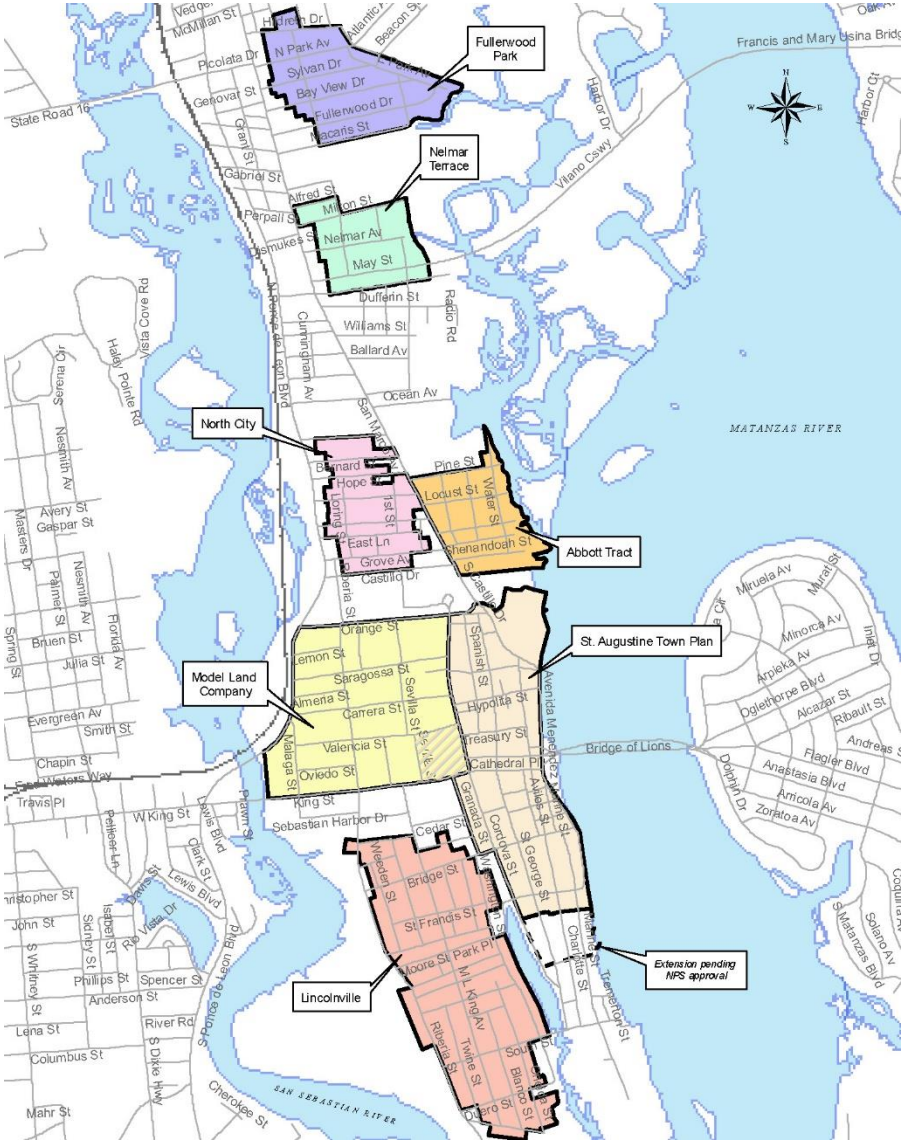


Water, Water Everywhere…

St. Augustine, Florida

Current National Register Districts



Water, Water Everywhere….

What is Mitigation

Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters. In order for mitigation to be effective we need to take action now—before the next disaster—to reduce human and financial consequences later (analyzing risk, reducing risk, and insuring against risk). It is important to know that disasters can happen at any time and any place and if we are not prepared, consequences can be fatal.

-- www.fema.gov/what-mitigation

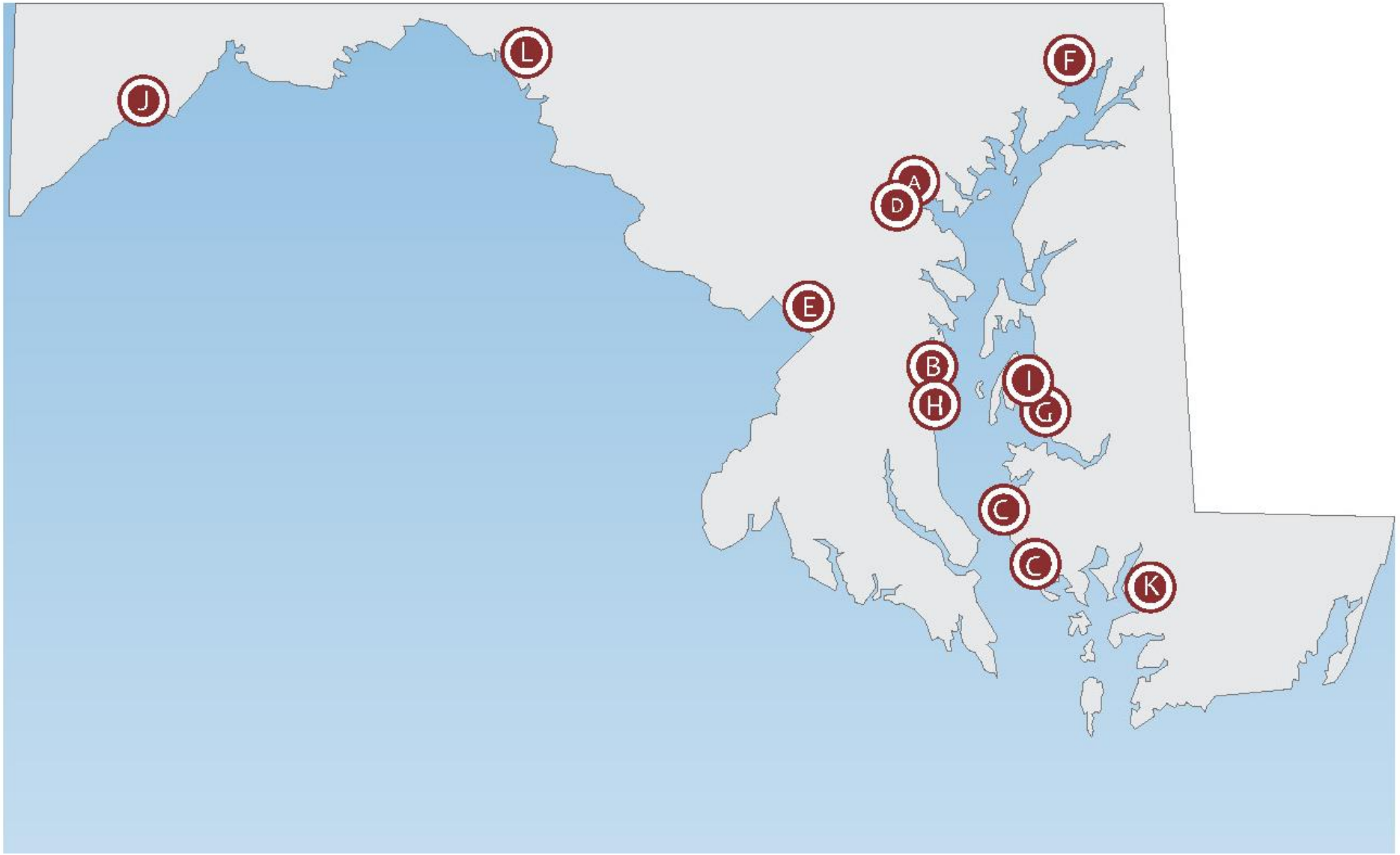
What is Mitigation

Effective mitigation requires that we *all* understand local risks, address the hard choices, and invest in long-term community well-being. Without mitigation actions, we jeopardize our safety, financial security and self-reliance.

- Disasters can happen at anytime and anyplace; their human and financial consequences are hard to predict.
- The number of disasters each year is increasing but only 50% of events trigger Federal assistance.
- FEMA's mitigation programs help reduce the impact of events—and our dependence on taxpayers and the Treasury for disaster relief.

-- www.fema.gov/what-mitigation

Vulnerable Communities



Vulnerable Communities

Mitigation Considerations

- Range of costs
- Time for implementation
- Required physical area
- Need for community buy-in
- Impact on character and integrity

Mitigation Goals

- Safety
- Mitigate Direct Impacts
- Mitigate Secondary Impacts
- Mitigate Property Damage
- Facilitate Return to “Normal”

Mitigation Types

Community-Wide Strategies:

- Mitigate threat within timeframe
- Protect large numbers of properties, historic and non-historic
- Facilitates continued population and sense of place
- Encourages population buy-in

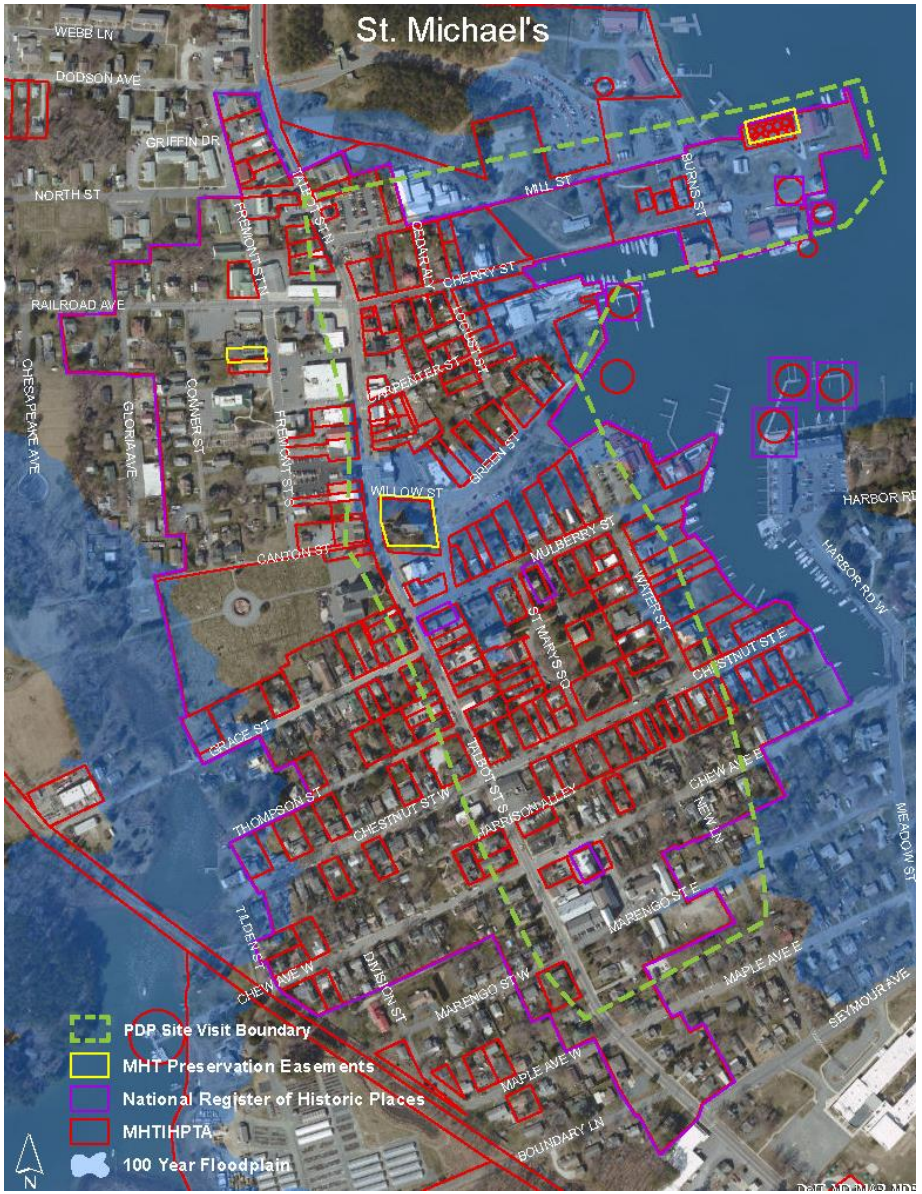
Building / Specific Specific Strategies:

- Provides protection of personal property

Community-Wide Mitigation Strategies

Objectives:

- Mitigate threat within timeframe
- Protect large numbers of properties, historic and non-historic
- Facilitates continued population and sense of place
- Encourages population buy-in



Community-Wide Mitigation Strategies

Types:

- Shoreline / bank protection
- Stormwater system upgrades
- Utility & infrastructure improvements
- Roadway and bridge improvements

Community-Wide Mitigation Strategies

Shoreline Protection - Structural

On-shore:

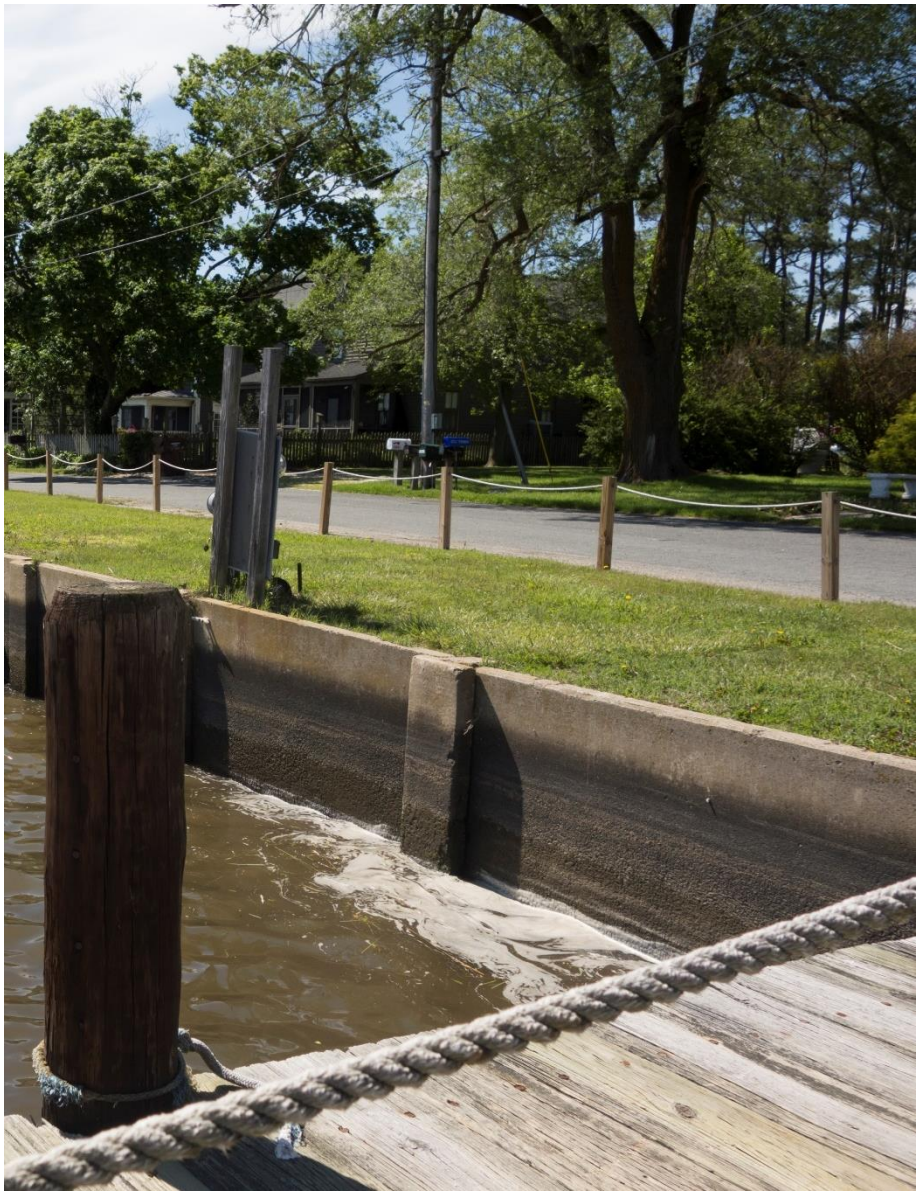
- Seawalls

Community-Wide Mitigation Strategies

Shoreline Protection - Structural

On-shore:

- Seawalls
- Bulkheads



Community-Wide Mitigation Strategies

Shoreline Protection - Structural

On-shore:

- Seawalls
- Bulkheads
- Revetments / Rip-Rap

Community-Wide Mitigation Strategies

Shoreline Protection - Structural

On-shore:

- Seawalls
- Bulkheads
- Revetments / Rip-Rap
- Flood Barriers – Levees, Dikes Embankments

Community-Wide Mitigation Strategies

Shoreline Protection - Structural

On-shore:

- Seawalls
- Bulkheads
- Revetments / Rip-Rap
- Flood Barriers – Levees, Dikes Embankments
- Floodgates

Community-Wide Mitigation Strategies

Shoreline Protection - Structural

Off-shore:

- Breakwaters

Community-Wide Mitigation Strategies

Shoreline Protection - Structural

Off-shore:

- Breakwaters
- Jetties

Community-Wide Mitigation Strategies

Shoreline Protection – Natural:

- Wetland Reclaimation

Community-Wide Mitigation Strategies

Shoreline Protection – Natural:

- Wetland Reclaimation
- Floodplain Restoration

Community-Wide Mitigation Strategies

Shoreline Protection – Natural:

- Wetland Reclaimation
- Floodplain Restoration
- Dune Re-Establishment

Community-Wide Mitigation Strategies

Shoreline Protection – Natural:

- Wetland Reclaimation
- Floodplain Restoration
- Dune Re-Establishment
- Beach Nourishment

Community-Wide Mitigation Strategies

Stormwater Management – Engineered:

- Drainage Ditches

Community-Wide Mitigation Strategies

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- Drainage Ditches
- Stormwater Management Systems

Community-Wide Mitigation Strategies

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- Drainage Ditches
- Stormwater Management Systems
- Pumping Stations

Community-Wide Mitigation Strategies

Stormwater Management – Engineered:

- Drainage Ditches
- Stormwater Management Systems
- Pumping Stations
- Water Storage / Retention Ponds

Community-Wide Mitigation Strategies

Stormwater Management – Landscape:

- Levees / Berms

Community-Wide Mitigation Strategies

Stormwater Management – Landscape:

- Levees / Berms
- Swales

Community-Wide Mitigation Strategies

Stormwater Management – Landscape:

- Levees / Berms
- Swales
- Reducing Impervious Surfaces

Community-Wide Mitigation Strategies

Stormwater Management – Landscape:

- Levees / Berms
- Swales
- Reducing Impervious Surfaces
- Native Plantings / Rain Gardens

Community-Wide Mitigation Strategies

Utility Infrastructure Protection:

- Fresh Water
- Sewage
- Electricity

Community-Wide Mitigation Strategies

Transportation Infrastructure:

- Roadways

Community-Wide Mitigation Strategies

Transportation Infrastructure:

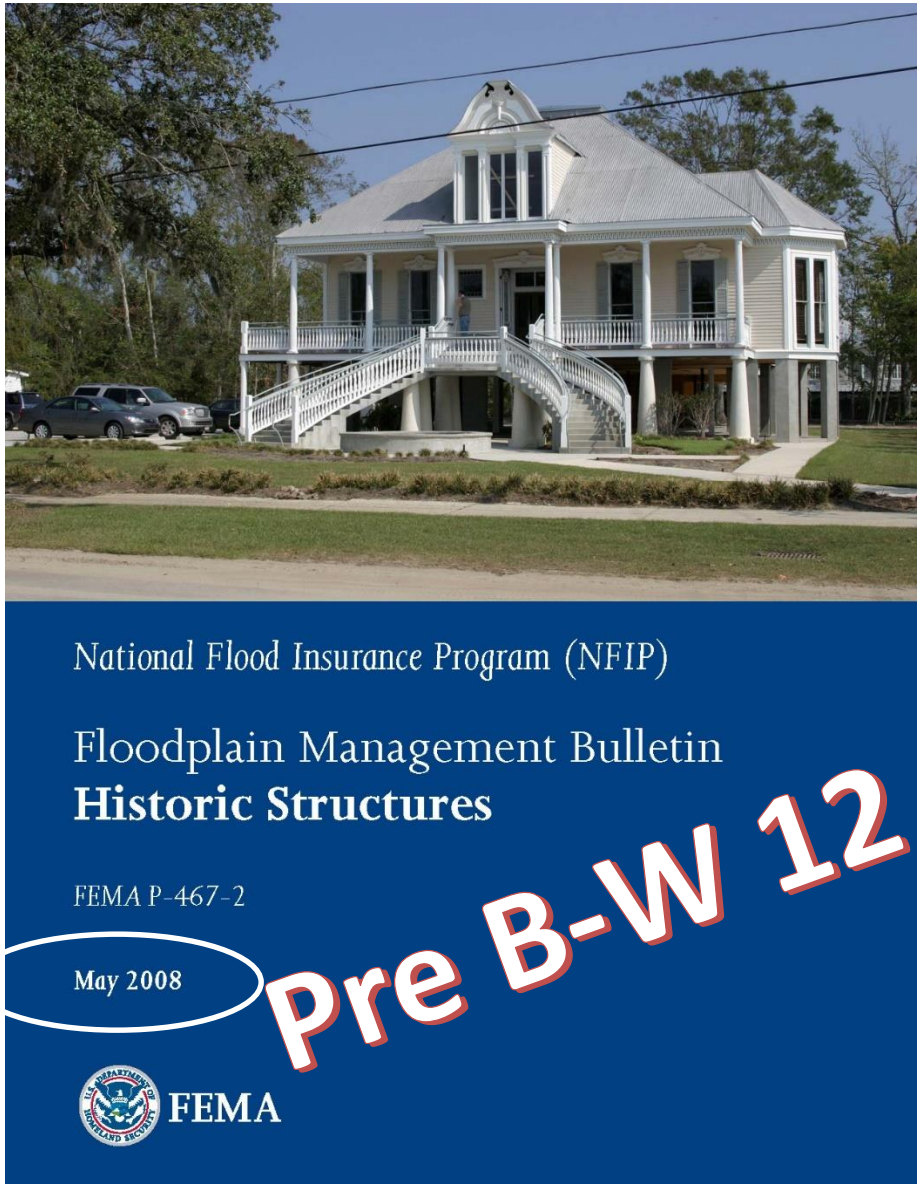
- Roadways
- Bridges

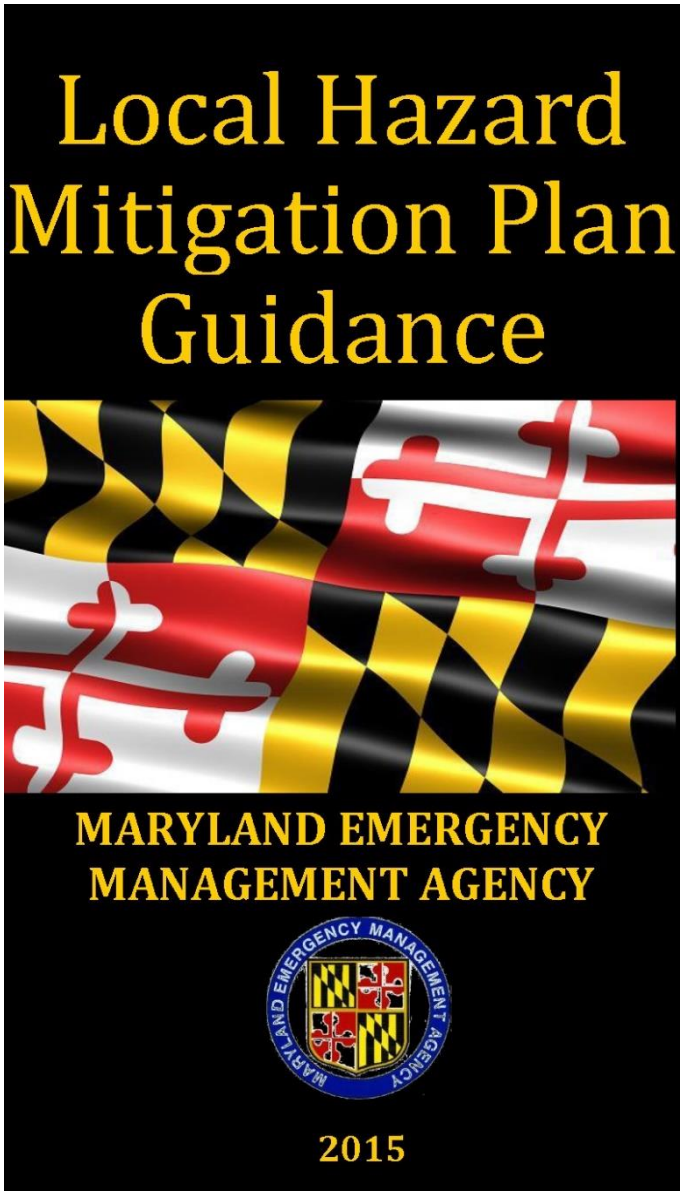
Community-Wide Mitigation Strategies

Transportation Infrastructure:

- Roadways
- Bridges
- Causeways

Community-Wide Mitigation Strategies



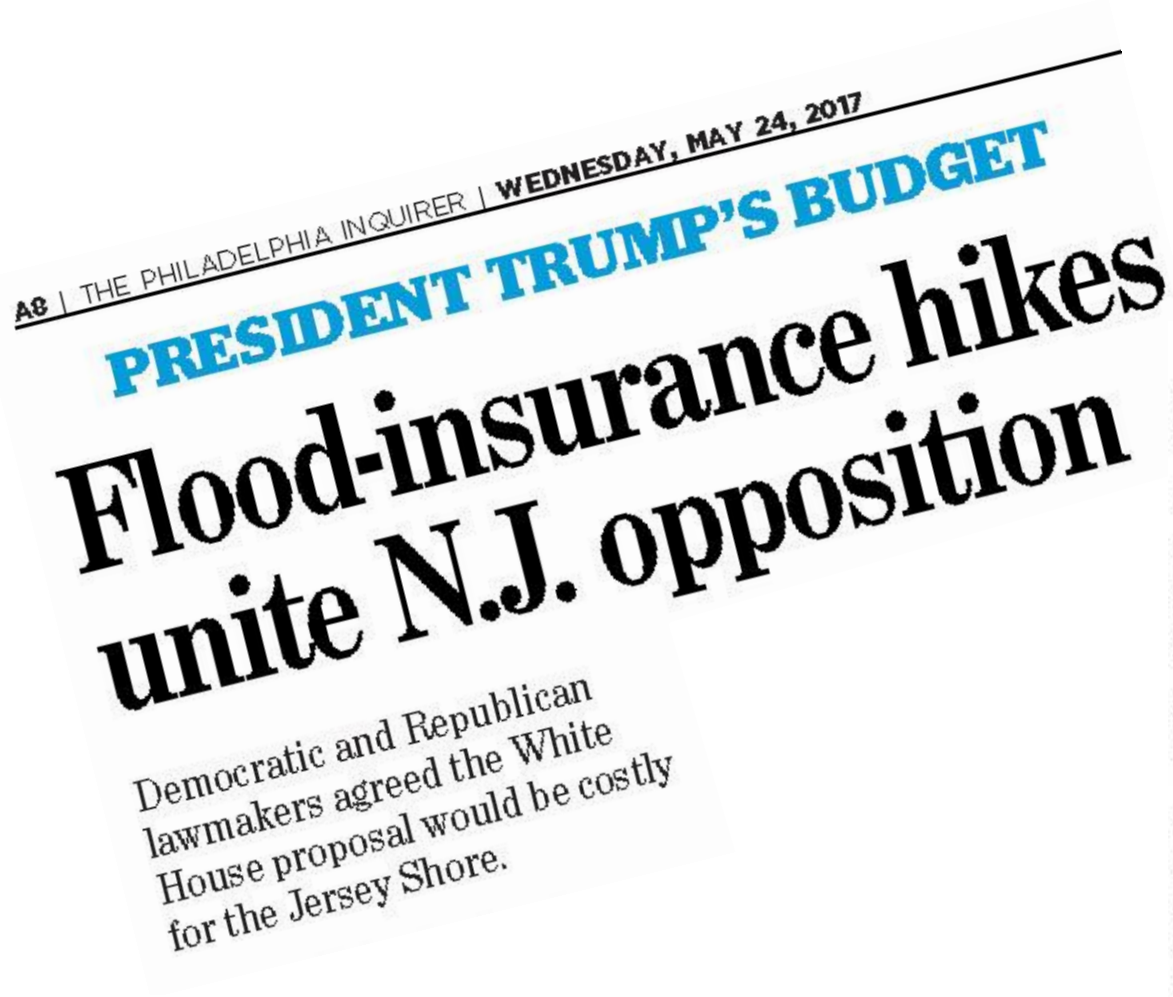


Building / Property Mitigation Strategies

Types:

- Landscape Improvements
- Basic Improvements
- Building Improvements

Building / Property Mitigation Strategies



A8 | THE PHILADELPHIA INQUIRER | WEDNESDAY, MAY 24, 2017

PRESIDENT TRUMP'S BUDGET

Flood-insurance hikes unite N.J. opposition

Democratic and Republican lawmakers agreed the White House proposal would be costly for the Jersey Shore.

Under Trump's plan, many could pay more for that insurance.

His proposal calls for "targeted premium increases" on people who have subsidized insurance and surcharges across the National Flood Insurance Program, to "make the program fiscally sustainable over time and begin paying down the NFIP's debt," budget documents said.

New Jersey lawmakers balked at those hikes. There were 229,595 federal flood-insurance policies in the Garden State through March — the fifth highest total nationwide, according to the Federal Emergency Management Agency. Nearly 61,000 more policies were in force in Pennsylvania, part of about five million nationwide.

Building / Property Mitigation Strategies

Landscape Improvements:

- Bulkheads
- Rip-Rap
- Retension Ponds
- Berms
- Swales
- Disconnect from Stormwater Drainage System
- Impervious Surface Reduction
- Rain Gardens
- Drywells
- Native Plantings
- Rain Barrels

Building / Property Mitigation Strategies

Basic Improvements:

- Maintenance
- Relocating / Elevating Critical Systems
- Installing Solar Collectors
- Using Flood-Damage Resistant Materials

Building / Property Mitigation Strategies

Building Improvements:

- Elevation
- Wet Floodproofing
- Dry Floodproofing
- Relocation
- Acquisition and Demolition

Elevation

Elevation


Myroncuk
House Move
609-758-21
www.myroncukhousemover
HIC# 13HE00000

Elevation

Elevation Issues:

- Feasibility

Elevation

Elevation Issues:

- Feasibility
- Appearance
- Foundation Modifications

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Elevation

Elevation Issues:

- Feasibility
- Appearance
- Foundation Modifications
- Access
- Building Equipment and Systems

New Construction in a Historic Context

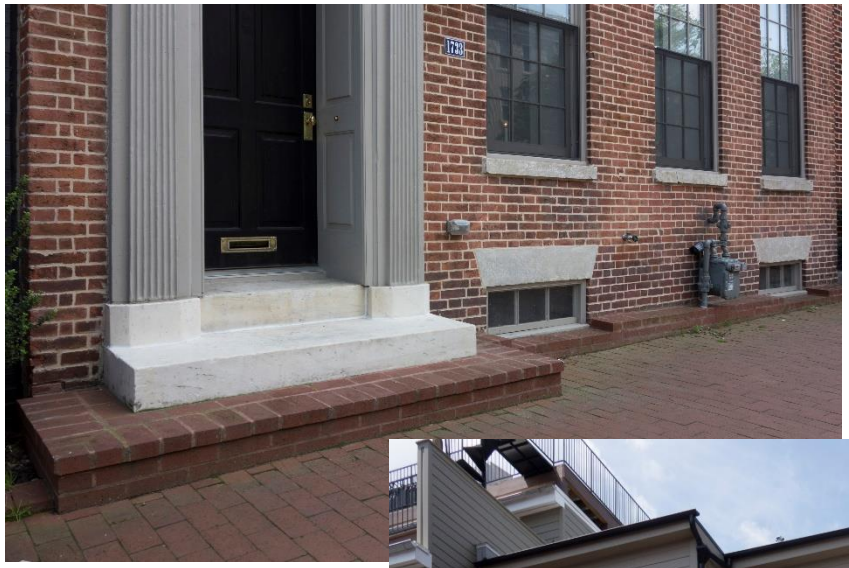
New Construction in a Historic Context

Wet Floodproofing

Wet Floodproofing Issues:

- Use Below Flood Elevation

Wet Floodproofing



Wet Floodproofing

Wet Floodproofing

Wet Floodproofing Issues:

- Use Below Flood Elevation
- Flood Openings

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Wet Floodproofing Issues:

- Use Below Flood Elevation
- Flood Openings
- Flood Resistant Materials

Wet Floodproofing

Wet Floodproofing Issues:

- Use Below Flood Elevation
- Flood Openings
- Flood Resistant Materials
- Building Systems and Equipment

Dry Floodproofing

Dry Floodproofing

Dry Floodproofing Issues:

- Construction Types
- Wall and Slab Surface Sealers
- Joint Sealers

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- Construction Types
- Wall and Slab Surface Sealers
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- Barriers and Shields

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- Barriers and Shields
- Fenestration Modifications

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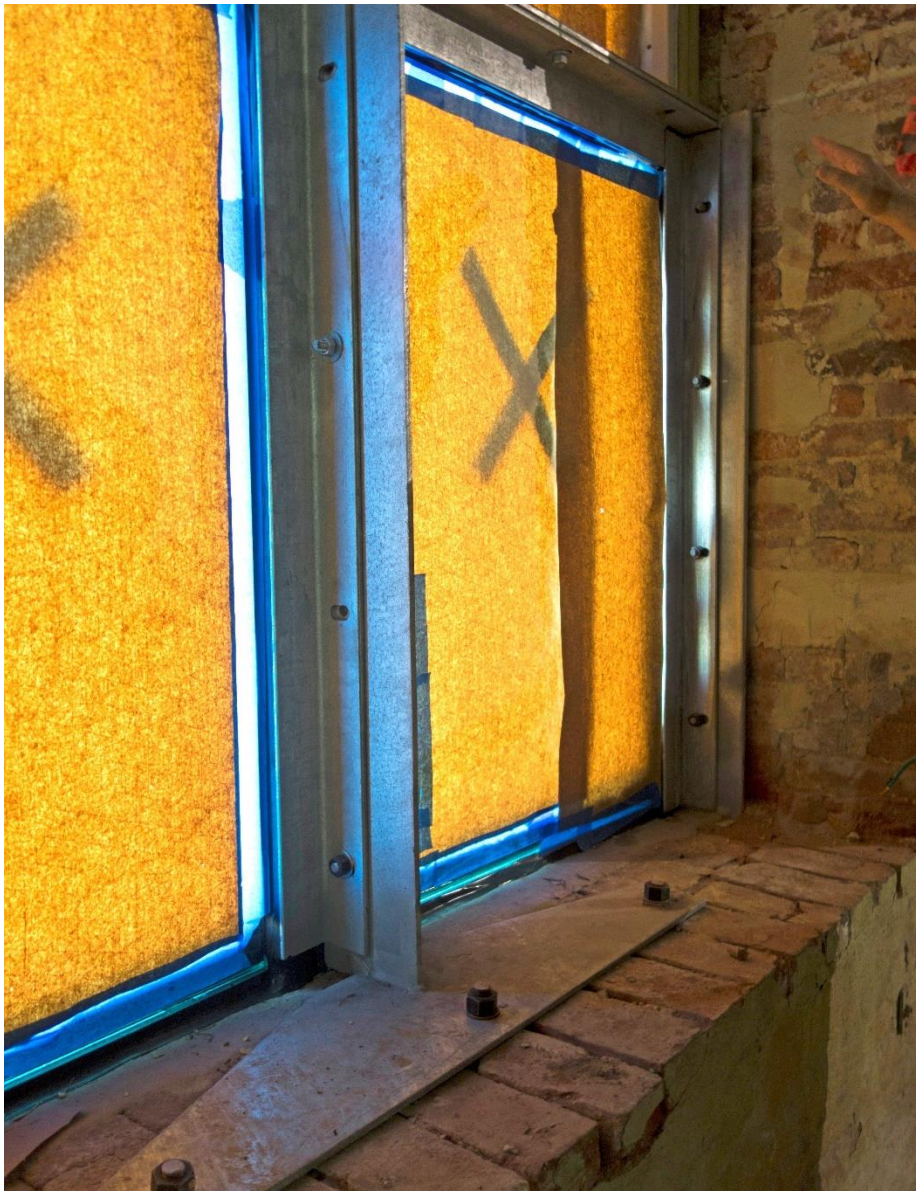

Dry Floodproofing

Dry Floodproofing Issues:

- Construction Types
- Wall and Slab Surface Sealers
- Joint Sealers
- Barriers and Shields
- Fenestration Modifications
- Secondary Drainage Systems

Perimeter Barriers

Perimeter Barriers

Relocation

Acquisition / Demolition

Need for Adaptation

First Steps:

- Understand the Threat
- Identify Vulnerable Properties
- Provide Framework for Property Protection that Maintains Integrity

HOBOKEN, N.J.

Resilient Building Design Guidelines

October 19th 2015

Need for Adaptation

Achieving a Delicate Balance

Moving to Higher Ground: Consideration for Migration

Migration Triggers:

- Interrupted Access
- Lack of Fresh Water
- Compromised Sewer Systems
- Local Industry Obsolescence
- Loss of Local Employment

MARYLAND HISTORICAL TRUST

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